THAT WHICH IS CLAIMED:

1. A thin full color flat panel display module, comprising:

a printed circuit board;

a matrix of substantially flat full color pixels mounted to a first surface of said printed circuit board;

each said pixel comprising a light emitting diode that emits in the red portion of the visible spectrum; a light emitting diode that emits in the green portion of the visible spectrum, and a light emitting diode that emits in the blue portion of the visible spectrum; and

driving circuitry for said light emitting diodes mounted on the opposite surface of said printed circuit board.

2. A thin full color flat panel display module according to Claim 1 wherein said driving circuitry comprises interconnections between said pixels and said driving circuitry plated through said printed circuit board.

3. A thin full color flat panel display module according to Claim 2 wherein said driving circuitry comprises:

an input buffer;

a demultiplexer responsive to said input buffer;

a row driver responsive to said demultiplexer; and

a column driver responsive to said input buffer.

4. A thin full color flat panel display module according to Claim 3 wherein said matrix comprises n rows and 2n columns, where n is a power of 2, and wherein said row driver comprises two drivers, each of which drive n/2 rows.

5. A thin full color flat panel display module according to Claim 3 wherein said matrix comprises 16 rows and 32 columns, and said row driver comprises two eight-row drivers.

6. A thin full color flat panel display module according to Claim 5 wherein said column driver further comprises two respective 32-bit shift registers, two respective latches, and two respective drivers for said red LEDs, said green LEDs and said blue LEDs.

7. A thin full color flat panel display module according to Claim 2 wherein each said pixel comprises:

a common anode for all three LEDs in said pixel for turning the entire pixel on or off; and

an individual cathode for each individual LED in said pixel for controlling the state and brightness of each said LED to thereby control the overall color emitted by said pixel.

8. A thin full color flat panel display module according to Claim 2 further comprising a monostable circuit means for detecting the assertion of one or more of the periodic input signals, and for disabling the power to the pixel when such input signals are absent for a defined period of time so that the maximum rating of said diodes in said pixels is not exceeded.

9. A thin full color flat panel display module according to Claim 1 and further comprising a front masking plate on the same surface of said printed circuit board as said pixels.

10. A thin full color flat panel display module according to Claim 9 wherein said front masking plate further comprises lenses over said pixels, and reflectors and contrast enhancement means adjacent said pixels.

11. A thin full color flat panel display module according to Claim 9 wherein said front masking plate further comprises a conductive coating that is in contact with the ground signal of said driving circuitry to thereby reduce the electromagnetic emissions of said module.

12. A thin full color flat panel display module according to Claim 9 and further comprising a supporting frame on said opposite surface of said printed circuit board from said pixels.

13. A thin full color flat panel display module according to Claim 12 wherein:

said front masking plate further comprises a post;

said printed circuit board comprises a clearance hole that matches said post and through which said post extends; and

said supporting frame comprises means for receiving said post and into which said post is received; and

means for securing said frame to said post to secure said front masking plate to said frame with said printed circuit board therebetween and to thereby minimize or prevent said printed circuit board from dislocation from said plate or said frame, but while allowing said printed circuit board and said frame to move independently in the case of thermal expansion.

14. A thin full color flat panel display module according to Claim 12 wherein said frame comprises a first slot adjacent said printed circuit board for permitting the flow of air between said frame and said board to aid in the dissipation of heat.

15. A thin full color flat panel display module according to Claim 12 wherein said frame comprises conductive mounting means opposite said printed circuit board for removably clipping said module to a power source.

16. A thin full color flat panel display module according to Claim 1 that can form any color on that portion of a CIE curve that falls within a triangle whose sides are formed by a line on the CIE curve between about 430 nm and 660 nm, a line between 660 nm and a point between 500 and 530 nm, and a line between said 500-530 nm point and about 430 nm.

17. A pixel comprising:

a light emitting diode (LED) that emits in the blue region of the visible spectrum;

a light emitting diode that emits in the green region of the visible spectrum and adjacent said blue LED;

said blue LED and said green LED having their respective top contacts in substantially the same plane; and

a light emitting diode that emits in the red region of the visible spectrum, and adjacent to said blue LED and said green LED, said red LED including at least one active layer of aluminum gallium arsenide (AlGaAs), and said red LED having its respective top anode contact in substantially the same plane as said anode contacts of said blue LED and said green LED.

18. A pixel according to Claim 17 wherein said LEDs comprise respective bottom contacts, and wherein said bottom contacts are in a substantially common plane different from said common plane of said top contacts.

19. A pixel according to Claim 2 wherein:

said top contacts are the anode contacts;

the cathode of each diode is connected to an individual pin: and

said anode top contacts of each diode are connected to a common anode pin.

20. A pixel according to Claim 17 wherein said blue LED comprises a silicon carbide substrate and a group III nitride active layer.

21. A pixel according to Claim 20 wherein said group III nitride active layer comprises gallium nitride.

22. A pixel according to Claim 17 wherein said green LED comprises a silicon carbide substrate and a group III nitride active layer.

23. A pixel according to Claim 22 wherein said group III nitride comprises gallium nitride.

24. A pixel according to Claim 17 wherein said green LED comprises a Group III phosphide active layer.

25. A pixel according to Claim 24 wherein said Group III phosphide comprises gallium phosphide.

26. A pixel according to Claim 24 wherein said Group III phosphide comprises aluminum indium gallium phosphide (*AlInGaP*).

27. A pixel according to Claim 17 wherein:

said blue LED comprises a silicon carbide substrate and a group III nitride active layer;

said green LED comprises a silicon carbide substrate and a group III nitride active layer; and

said blue LED and said green LED having their voltage parameters matched to one another to simplify the driving thereof.

28. A pixel according to Claim 27 further comprising:

constant current drive means for said LEDs; and

a resistor in circuit in series between said constant current drive means and the cathode of said red LED to compensate for the differences between the forward voltage characteristics of said red LED and the forward voltage characteristics of said matched blue and green LEDs.

29. A pixel according to Claim 17 that can form any color on that portion of a CIE curve that falls within a triangle whose sides are formed by a line on the CIE curve between about 430 nm and 660 nm, a line between about 660 nm and a point between 500 and 530 nm, and a line between said 500-530 nm point and about 430 nm.

30. A pixel comprising:

a light emitting diode (LED) that emits in the blue region of the visible spectrum;

a light emitting diode that emits in the green region of the visible spectrum and adjacent said blue LED; and

a light emitting diode that emits in the red region of the visible spectrum, and adjacent to said blue LED and said green LED;

said blue light emitting diode comprising a silicon carbide substrate and a group III nitride active layer.

31. A pixel according to Claim 30 wherein said red LED, said blue LED and said green LED have their respective top anode contacts in substantially the same plane.

32. A pixel according to Claim 31 wherein said LEDs comprise respective bottom contacts, and wherein said bottom contacts are in a substantially common plane different from said common plane of said top contacts.

33. A pixel according to Claim 31 wherein said red LED includes at least one active layer of aluminum gallium arsenide (AlGaAs).

34. A pixel according to Claim 31 wherein the cathode of each diode is connected to an individual pin and the anode top contacts of each diode are connected to a common anode pin.

35. A pixel according to Claim 30 wherein said group III nitride active layer comprises gallium nitride.

36. A pixel according to Claim 30 wherein said green LED comprises a silicon carbide substrate and a group III nitride active layer.

37. A pixel according to Claim 36 wherein said group III nitride comprises gallium nitride.

38. A pixel according to Claim 30 wherein said green LED comprises a Group III phosphide active layer.

39. A pixel according to Claim 36 wherein said Group III phosphide comprises gallium phosphide.

40. A pixel according to Claim 38 wherein said Group III phosphide comprises aluminum indium gallium phosphide (*AlInGaP*).

41. A pixel according to Claim 30 wherein:

said blue LED comprises a silicon carbide substrate and a group III nitride active layer;

said green LED comprises a silicon carbide substrate and a group III nitride active layer; and

said blue LED and said green LED having their voltage parameters matched to one another to simplify the driving thereof.

42. A pixel according to Claim 41 further comprising:

constant current drive means for said LEDs; and

a resistor in circuit between said constant current drive means and the cathode of said red LED to compensate for the differences between the forward voltage characteristics of said red LED and the forward voltage characteristics of said matched blue and green LEDs.

43. A pixel according to Claim 30 that can form any color on that portion of a CIE curve that falls within a triangle whose sides are formed by a line on the CIE curve between about 430 nm and 660 nm, a line between about 660 nm and a point between 500 and 530 nm, and a line between said 500-530 nm point and about 430 nm.

44. A pixel formed of solid state light emitting diodes that can form any color on that portion of a CIE curve that falls within a triangle whose sides are formed by a line on the CIE curve between 430 nm and 660 nm, a line between 660 nm and a point between 500 and 530 nm, and a line between said 500-530 nm point and 430 nm.

45. A thin full color flat panel display module, comprising:

a pixel matrix formed of n rows and 2n columns, where n is a power of 2; and

means for driving the matrix in sets of two sets of blocks that each have n/2 rows per block, to thereby allow more brightness (current) per pixel, lower clock update speeds, and a generally more efficient use of power.

46. A thin full color flat panel display module according to Claim 45 wherein n equals 8.

47. A thin full color flat panel display module according to Claim 45 wherein each said pixel comprises:

a red LED, a blue LED, and a green LED;

a common anode for all three LEDs in said pixel for turning the entire pixel on or off; and

an individual cathode for each individual LED in said pixel for controlling the state and brightness of each said LED to thereby control the overall color emitted by said pixel.

48. A thin full color flat panel display module according to Claim 47 further comprising a monostable circuit means for detecting the assertion of one or more of the periodic input signals, and for disabling the power to the pixel when such input signals are absent for a defined period of time so that the maximum rating of said diodes in said pixels is not exceeded.

49. A thin full color flat panel display module comprising:

a matrix of LED pixels arranged in horizontal and vertical rows on a printed circuit board;

each said pixel comprising four respective quadrants;

a red LED in a first of said quadrants, a green LED in a second of said quadrants, a blue LED in a third of said quadrants, and a common contact pad in the fourth of said quadrants;

said LEDs having the same quadrant relationship to each other within each pixel;

said quadrants being oriented identically in said pixels in each row; and

said quadrants in said pixels in any given row being oriented 90° or 180° opposite said pixels in the adjacent row to thereby position the common contact pad in each pixel in one row adjacent the common contact pads in each pixel in an adjacent row of pixels.

50. A thin full color flat panel display module according to Claim 49 wherein said pixels are oppositely oriented in alternating horizontal rows.

51. A thin full color flat panel display module according to Claim 49 wherein said pixels are oppositely oriented in alternating vertical rows.

52. A thin full color flat panel display module according to Claim 49 wherein said printed circuit board has one common anode via hole for each two pixels, each said common via hole being positioned between two adjacent rows of pixels and between said respective common anode pads of said respective pixels in each of said adjacent rows so that an anode lead from each of said two pixels can pass through said common via hole, thus minimizing the total number of via holes required in said printed circuit board.

53. A thin full color flat panel display module according to Claim 49 wherein said contact pad comprises an anode pad.

54. A pixel comprising:

a light emitting diode (LED) that emits in the blue region of the visible spectrum;

a light emitting diode that emits in the green region of the visible spectrum and adjacent said blue LED; and

a light emitting diode that emits in the red region of the visible spectrum, and adjacent to said blue LED and said green LED;

said green light emitting diode comprising a silicon carbide substrate and a group III nitride active layer.

55. A pixel according to Claim 54 wherein said red LED, said blue LED and said green LED have their respective top anode contacts in substantially the same plane.

56. A pixel according to Claim 55 wherein said LEDs comprise respective bottom contacts, and wherein said bottom contacts are in a substantially common plane different from said common plane of said top contacts.

57. A pixel according to Claim 55 wherein said red LED includes at least one active layer of aluminum gallium arsenide (AlGaAs).

58. A pixel according to Claim 55 wherein the cathode of each diode is connected to an individual pin and the anode top contacts of each diode are connected to a common anode pin.

59. A pixel according to Claim 54 wherein said group III nitride active layer comprises gallium nitride.

60. A pixel according to Claim 54 wherein said blue LED comprises a silicon carbide substrate and a group III nitride active layer.

61. A pixel according to Claim 60 wherein said group III nitride comprises gallium nitride.

62. A pixel according to Claim 54 wherein:

said blue LED comprises a silicon carbide substrate and a group III nitride active layer;

said green LED comprises a silicon carbide substrate and a group III nitride active layer; and

said blue LED and said green LED having their voltage parameters matched to one another to simplify the driving thereof.

63. A pixel according to Claim 62 further comprising:

constant current drive means for said LEDs; and

a resistor in circuit between said constant current drive means and the cathode of said red LED to compensate for the differences between the forward voltage characteristics of said red LED and the forward voltage characteristics of said matched blue and green LEDs.

64. A pixel according to Claim 54 that can form any color on that portion of a CIE curve that falls within a triangle whose sides are formed by a line on the CIE curve between about 430 nm and 660 nm, a line between about 660 nm and a point between 500 and 530 nm, and a line between said 500-530 nm point and about 430 nm.